



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/810,973	03/15/2001	Robert Joseph Bestgen	ROC920000272US1	7443

7590 01/15/2004
Gero G. McClellan
Thomason, Moser & Patterson, L.L.P.
3040 Post Oak Boulevard, Suite 1500
Houston, TX 77056-6582

EXAMINER

RIMELL, SAMUEL G

ART UNIT	PAPER NUMBER
----------	--------------

2175

DATE MAILED: 01/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/810,973

Applicant(s)

BESTGEN ET AL.

Examiner

Sam Rimell

Art Unit

2175

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-38 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.

- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.


SAM RIMELL
PRIMARY EXAMINER

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-38 are rejected under 35 U.S.C. 102(e) as being anticipated by Acharya et al. (U.S. Patent 6,477,534).

Claim 1: FIG. 10A illustrates a method step of receiving a query. FIG. 10C illustrates the method step of re-writing the query of FIG. 10A, based on an evaluation of execution plans.

The evaluation of execution plans is shown in table 2 and is illustrated as an evaluation the query operators AVG and SUM as shown in Table 2. (Examiner has numbered the three calculations in Table 2 as “1” “2” and “3” for clarity). Three execution plans are illustrated in table 2, numbered as “1”, “2” and “3” by the Examiner. Although the three execution plans shown in table 2 involve executing the operator AVG, they apply as well to the operator SUM used in the query of FIG. 10A.

Each execution plan in Table 2 involves calculation of cost. The cost in this case is the number of subsamples of data (referred to as “chunks”) that must be taken from the database to obtain certain desired levels of confidence for the query results. The first execution plan involves no chunks, while the second and third plans involve certain degrees of chunks.

The cost (number of chunks) is associated with a numerical quantity (confidence P) in each calculation. The confidence P has four different characteristics, or vector dimensions. These four different characteristics are magnitude, variance, confidence, and penalty. For

example, as seen in the first calculation, the magnitude is the highest value for P, which is 0.961. The variance is the range of values, $0 \rightarrow 0.961$ for that plan. The confidence is any given value P within the range. The penalty is 0.961 since it is the maximum difference between the magnitude and the lowest value in the range (zero).

Table 2 and its associated explanation at col. 18, lines 25-37 illustrate that the third execution plan, which uses a specific chunking technique is the most desirable of the plans, since it produces the highest confidence level P. Thus, as seen in FIG. 10C, the original query from FIG. 10A is altered to produce a new query in FIG. 10C that uses the desirable “chunking technique” described in the second and third execution plans of Table 2.

Claim 2: The signal bearing medium is the query optimization program that optimizes the query in FIG. 10A and changes it to the query in FIG. 10C. The program is schematically illustrated as “AQUA” in FIG. 9.

Claim 3: AS described with respect to claim 4, evaluation of the query operators will involve a comparison of at least two dimensions (characteristics) of the confidence value P. For example, in the first calculation in table 2, the confidence value P is compared to the variance (the range of values for P).

Claim 4-5: The confidence value of P has all four of the claimed characteristics or dimensions. These are magnitude, variance, confidence and penalty. The explanation associated with claim 1 provides more detail on how the confidence values in table 2 have each of these characteristics.

Claim 6: Each of the three calculations in table 2 involve an evaluation of the vector quantity P. Thus, lacking any further detail on the nature of the vector quantity, table 2 appears to illustrate three different vector quantities (three individual evaluations of P).

Claim 7: The vector quantity P has four different characteristics, which are magnitude, variance, confidence and penalty.

Claim 8: Table 2 illustrates three execution plans.

Claim 9: The “acceptance criteria” in Acharya et al. is having the highest desired level of confidence. Thus, the third execution plan in Table 2 meets an acceptance criteria.

Claim 10: The objective in Acharya et al. is to pursue the strategy that achieves the highest confidence value (col. 5, lines 38-47). These are the execution plans in which the chunking technique is used to increase the confidence value P.

Claim 11: The confidence value P has four characteristics, including magnitude, variance confidence and penalty. The remarks for claim 1 outline how each of these characteristics are shown in Table 2.

Claim 12: See remarks for claim 5.

Claim 13: See remarks for claims 1. Note that each of the three calculations in table 2 involve an evaluation of the vector quantity P. Thus, lacking any further detail on the nature of the vector quantity, table 2 appears to illustrate three different vector quantities (three individual evaluations of P).

Claim 14: Table 3 describes each query plan as being associated with “upper bounds”. Col. 13, lines 16-35 further elaborate the calculation of these upper bounds, and state that they

Art Unit: 2175

are proportional to selectivity. Thus, selectivity becomes another vector quantity having multiple characteristics, or dimensions.

Claim 15: See remarks for claim 6.

Claim 16: See remarks for claim 3.

Claim 17: See remarks for claim 4.

Claim 18: See remarks for claim 5.

Claim 19: Table 2 involves a consideration of three execution plans.

Claim 20: See remarks for claim 4.

Claim 21: See remarks for claim 5.

Claim 22: See remarks for claims 1 and 5.

Claim 23: See remarks for claim 3.

Claim 24: See remarks for claim 8.

Claim 25: See remarks for claim 9.

Claim 26: See remarks for claim 10.

Claim 27: See remarks for claim 1.

Claim 28: See remarks for claim 2.

Claim 29: See remarks for claim 3.

Claim 30: See remarks for claim 4.

Claim 31: See remarks for claim 5.

Claim 32: See remarks for claim 6.

Claim 33: See remarks for claim 7.

Claim 34: See remarks for claim 8.

Art Unit: 2175

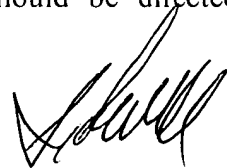
Claim 35: See remarks for claim 9.

Claim 36: See remarks for claim 10.

Claim 37: See remarks for claim 11.

Claim 38: See remarks for claim 12.

Any inquiry concerning this communication should be directed to Sam Rimell at telephone number (703) 306-5626.

A handwritten signature in black ink, appearing to read 'S. Rimell', is positioned above the printed name and title.

Sam Rimell
Primary Examiner
Art Unit 2175